

**CLAIMS**

1. A maintenance system for a set of equipment comprising:

- 5       - electronic circuits for monitoring proper operation (1a, 2a, 3a,...) of each piece of equipment (1, 2, 3,...), each furnished with means for formulating tests of proper operation and for issuing fault messages should the tests  
10       (400, 401) fail, as well as a nonvolatile memory (405) integral with the monitored piece of equipment,
  - a central maintenance computer (7) allied with said electronic circuits for monitoring proper  
15       operation (1, 2a, 3a,...), provided with means of diagnosis of the state of operation of the set of equipment (1, 2, 3,...), functioning on the basis of the fault messages of said electronic circuits for monitoring proper  
20       operation (1, 2a, 3a,...) and formulating a report regarding the overall state of operation of the set of equipment (1, 2, 3,...),
  - one or more data transmission links (10) linking said electronic circuits for monitoring  
25       proper operation (1a, 2a, 3a,...) to the central maintenance computer (7),
- said maintenance system for a set of equipment (1, 2, 3,...) being characterized in that the central maintenance computer (7) comprises means for making its  
30       report regarding the overall state of operation of the set of equipment (1, 2, 3,...) available on the data transmission link or links (10) linking it to the electronic circuits for monitoring proper operation (1a, 2a, 3a,...) and in that the electronic circuits  
35       for monitoring proper operation (1a, 2a, 3a,...) comprise means of detection, capture and transfer (403, 413, 423) into their nonvolatile memories (405) integral with the equipment, of the report regarding the overall state of operation of the set of equipment

(1, 2, 3,...) formulated by the central maintenance computer (7) when this report travels over said transmission link or links (10) linking the electronic circuits for monitoring proper operation  
5 (1a, 2a, 3a, etc.) to the central maintenance computer (7).

2. The system as claimed in claim 1, in which pieces of equipment (3, 4, 5, 6) are grouped together in  
10 subsets (11) themselves furnished, at their upper level of assemblage, with electronic circuits for monitoring proper operation (11a) generating fault messages relating to said subsets (3, 4, 5, 6) destined for the central maintenance computer (7), characterized in that  
15 the electronic circuits for monitoring proper operation (3a, 4a, 5a, 6a) of these pieces of equipment (3, 4, 5, 6) grouped into one and the same subset (11) are also furnished with means of detection, capture and transfer (403, 413, 423) into their nonvolatile  
20 memories (405) integral with the equipment, of the fault messages issued by the (11a) or the electronic circuits for monitoring proper operation of the subset(s) (11) to which the pieces of equipment (3, 4, 5, 6) belong, when these messages travel over  
25 said transmission link or links (10) linking the electronic circuits for monitoring proper operation (3a, 4a, 5a, 6a, 11a) to the central maintenance computer (7).

30 3. The system as claimed in claim 1, in which pieces of equipment (2, 3) comprise parts (20, 21, 22, 23, 30, 31, 32) themselves furnished, at their lower level of assemblage, with electronic circuits for monitoring proper operation (20a, 21a, 22a, 23a, 30a, 31a, 32a)  
35 generating fault messages relating to said equipment parts (20, 21, 22, 23, 30, 31, 32) destined for the central maintenance computer (7), characterized in that the electronic circuits for monitoring proper operation (20a, 21a, 22a, 23a, 30a, 31a, 32a) of these equipment

parts (20, 21, 22, 23, 30, 31, 32) are also furnished with means of detection, capture and transfer (403, 413, 423) into their nonvolatile memories (405) integral with the equipment parts, of fault messages  
5 issued by the circuit or circuits for monitoring proper operation (2a, 3a) of the piece or pieces of equipment (2, 3) to which the equipment parts (20, 21, 22, 23, 30, 31, 32) belong when they travel over said transmission link or links (10) linking the  
10 electronic circuits for monitoring proper operation (1a, 2a, 3a, etc.) to the central maintenance computer (7).

4. The system as claimed in claim 1, in which pieces  
15 of equipment (3) comprise parts (30, 31, 32) themselves furnished, at their lower level of assemblage, with electronic circuits for monitoring proper operation (30a, 31a, 32a) generating fault messages relating to said equipment parts (30, 31, 32) destined for the  
20 central maintenance computer (7), and where the pieces of equipment (3) which comprise these equipment parts (30, 31, 32) are grouped together with other pieces of equipment (4, 5, 6) in subsets (11) themselves furnished, at their upper level of assemblage, with  
25 electronic circuits for monitoring proper operation (11a) generating fault messages relating to said subsets (11) destined for the central maintenance computer (7), characterized in that the electronic circuits for monitoring proper operation (30a, 31a, 32a)  
30 of the parts (30, 31, 32) of these pieces of equipment (3) are also furnished [lacuna] means (403) of detection, capture and transfer (403, 413, 423) into their nonvolatile memories (405) integral with the equipment parts, of fault messages issued by the  
35 circuit or circuits for monitoring proper operation (3a, 11a) of the piece or pieces of equipment (3) and of the subset(s) of equipment (11) to which the equipment parts (30, 31, 32) belong, when these messages travel over said transmission link or links

(10) linking the electronic circuits for monitoring proper operation (1a, 2a, 3a, etc.) to the central maintenance computer (7).

5 5. The system as claimed in claim 1, in which pieces  
of equipment (3) comprise parts (30, 31, 32) themselves  
furnished, at their lower level of assemblage, with  
electronic circuits for monitoring proper operation  
(30a, 31a, 32) generating fault messages relating to  
10 said equipment parts (30, 31, 32) destined for the  
central maintenance computer (7), characterized in that  
the electronic circuits for monitoring proper operation  
(3a, 11a) of these pieces of equipment (3) are also  
furnished with means (403) of detection, capture and  
15 transfer (403, 413, 423) into their nonvolatile  
memories (405) integral with the equipment, of the  
fault messages issued at the lower level of assemblage  
by the circuit or circuits for monitoring proper  
operation (30a, 31a, 32a, 3a, 4a, 5a, 6a) of the  
20 equipment parts (30, 31, 32) of which they are composed  
when these messages travel over said transmission link  
or links (10) linking the electronic circuits for  
monitoring proper operation (1a, 2a, 3a, etc.) to the  
central maintenance computer (7).

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6. The system as claimed in claim 1, in which pieces  
of equipment (3) comprise parts (30, 31, 32) themselves  
furnished, at their lower level of assemblage, with  
electronic circuits for monitoring proper operation  
30 (30a, 31a, 32) generating fault messages relating to  
said equipment parts (30, 31, 32) destined for the  
central maintenance computer (7), and where the pieces  
of equipment (3) which comprise these equipment parts  
(30, 31, 32) are grouped together with others (4, 5, 6)  
35 in subsets (11) themselves furnished, at their upper  
level of assemblage, with electronic circuits for  
monitoring proper operation (11a) generating fault  
messages relating to said subsets destined for the  
central maintenance computer (7), characterized in that

the electronic circuits for monitoring proper operation (3a, 11a) of these pieces of equipment (3) are also furnished with means (403) of detection, capture and transfer (403, 413, 423) into their nonvolatile  
5 memories (405) integral with the equipment, of the fault messages issued at the lower level of assemblage by the circuit or circuits for monitoring proper operation (30a, 31a, 32a, 3a, 4a, 5a, 6a) of their equipment parts (30, 31, 32) and, at the upper level of  
10 assemblage, by the circuit or circuits for monitoring proper operation of the pieces of equipment (3, 4, 5, 6) belonging to the same subset, when these messages travel over said transmission link or links (10) linking the electronic circuits for monitoring  
15 proper operation (1a, 2a, 3a, etc.) to the central maintenance computer (7).

7. The system as claimed in claim 1, comprising a printer (9) linked to the central maintenance computer  
20 (7) by the or one of said data transmission links (10) attaching the central maintenance computer (7) to the electronic circuits for monitoring proper operation (1a, 2a, 3a,...), characterized in that the means of the central maintenance computer (7) which make its  
25 report on the overall state of operation of the set of equipment (1, 2, 3,...) available on the data transmission link or links (10) linking it to the electronic circuits for monitoring proper operation (1a, 2a, 3a,...) are also the means of making  
30 its report on the overall state of operation of the set of equipment (1, 2, 3,...) available to the printer (9).

8. The system as claimed in claim 1, comprising a  
35 keyboard/screen interface (8) linked to the central maintenance computer (7) by the or one of said data transmission links (10) attaching the central maintenance computer (7) to the electronic circuits for monitoring proper operation (1a, 2a, 3a,...),

characterized in that the means of the central maintenance computer (7) which make its report on the overall state of operation of the set of equipment (1, 2, 3,...) available on the data transmission link or links (10) linking it to the electronic circuits for monitoring proper operation (1a, 2a, 3a,...) are also the means of means of making its report on the overall state of operation of the set of equipment (1, 2, 3,...) available to the keyboard/screen interface (8).

9. The system as claimed in claim 1, associated with an airborne external telecommunication network linked to the central maintenance computer (7) by the or one of said data transmission links (10) attaching the central maintenance computer (7) to the electronic circuits for monitoring proper operation (1a, 2a, 3a,...), characterized in that the means of the central maintenance computer (7) which make its report on the overall state of operation of the set of equipment (1, 2, 3,...) available on the data transmission link or links (10) linking it to the electronic circuits for monitoring proper operation (1a, 2a, 3a,...) are also the means of means of making its report on the overall state of operation of the set of equipment (1, 2, 3,...) available to the airborne external telecommunication network.